

MONDAY NOVEMBER 25, 2024

08:00-08:45	Registration	
08:45-09:15	Opening Ceremony	
	Chairperson: Stephan Roche (ICREA / ICN2, Spain)	
09:15-09:45	Yury Gogotsi (Drexel University, USA)	K
	Scalable Synthesis of MXenes	
09:45-10:30	Andre Geim (University of Manchester, UK)	P
	Molecular Matter under 2D Confinement	
10:30-11:00	Coffee Break / Poster Session / Exhibition	
	Chairperson: Yury Gogotsi (Drexel University, USA)	
11:00-11:30	Xinliang Feng (MPI & TU Dresden, Germany)	K
	Organic 2D Membranes in Emerging Energy Devices	
11:30-12:00	Francesco Bonaccorso (BeDimensional, Italy)	I
	2D crystals-based next-generation energy devices	
12:00-12:30	Lourdes F. Vega (Khalifa University, United Arab Emirates)	K
	Multiscale computational modeling for accelerating the understanding and performance of 2D materials for energy applications	
12:30-13:30	ROUND TABLE 1: From lab to business	
13:30-14:30	Cocktail Lunch (offered by I2DM2024 organisers)	
14:30-15:00	Poster Session I / Exhibition	
	Chairperson: Rachel Corke (RIC2D / Khalifa University, UAE)	
15:00-15:30	Mamoun Taher (Graphmatech, Sweden)	I
	Transforming Graphene Innovations into Winning Startups: Creating an Ecosystem for a Tech-Driven Economy	
15:30-16:30	ROUND TABLE 2: Promoting start-ups in Advanced Materials	
16:30-17:00	Coffee Break / Poster Session / Exhibition	
	Chairperson: Francesco Bonaccorso (BeDimensional, Italy)	
17:00-17:30	Stephan Roche (ICREA / ICN2, Spain)	K
	Artificial Intelligence for realistic modelling of electronic, thermal, optical and transport properties in trillion atoms scale models in complex forms of 2D Materials-based composites and amorphous compounds	
17:30-18:00	Egor Alekseev (Constructor Tech, UK)	I
	Exploring Trends in Computational Research for Advanced Materials	
18:00-18:30	Vladimir Falko (National Graphene Institute, University of Manchester, UK)	K
	Twintronics of van der Waals ferroelectrics	
18:30-18:45	Ivan Kruglov (Emerging Technologies Research Center, XPANCEO, United Arab Emirates)	O
	AI-guided screening of van der Waals materials with high optical anisotropy	
18:45-19:00	Daniel Bahamon Garcia (Research and Innovation Center for Graphene and 2D Materials (RIC2D) - Khalifa University, United Arab Emirates)	O
	Elucidating proton permeation and hydrogenation behaviour in graphene-based materials from DFT calculations	
19:00-19:15	Zineb Kerrami (University Grenoble Alpes, France)	O
	Resistive switching in memristors based on 2D materials	

Workshop 1: Advanced materials in desalination and water treatment

Chairperson: Vincenzo Palermo (CNR-ISOF, Italy)

09:00-09:20	Mark A. Bissett (Molymem & NGI, UK) 2D Material Membranes for Nanofiltration Applications	I
09:20-09:35	Amritroop Achari (University of Manchester, UK) pH-dependent water permeability switching and its memory in MoS ₂ membranes	O
09:35-09:50	Seunghyun Hong (Khalifa University, United Arab Emirates) Ultrahigh Inter-Cation Selectivity from Chemically Nanoconfined Fluidic Channels	O
09:50-10:05	Dmitrii Petukhov (New York University Abu Dhabi, United Arab Emirates) Influence of swelling and penetrants' adsorption on the performance of graphene oxide membranes	O
10:05-10:20	Adetunji Alabi (Khalifa University, United Arab Emirates) Nanocomposite Ion Exchange Membranes Based on Modified Graphene Oxide for Desalination	O

10:20-11:25 Coffee Break / Poster Session / Exhibition

Chairperson: Mark A. Bissett (Molymem & NGI, UK)

11:25-11:45	Vincenzo Palermo (CNR-ISOF, Italy) Upcycling and recycling of commercial water filters using graphene derivatives	I
11:45-12:00	Rahma Al Busaidi (Sultan Qaboos University, Oman) Ultrathin graphene-based membrane with precise molecular sieving and ultrafast solvent permeation	O
12:00-12:15	Samar Abdelwadood (Khalifa University, United Arab Emirates) Harnessing 2D Materials and Artificial Intelligence (AI) for Breakthroughs in Atmospheric Water Harvesting for Sustainable Water Solutions	O

12:15-14:00 Cocktail Lunch (offered by I2DM2024 organisers)

Chairperson: Chakravarty Gudipati (TII, UAE)

14:00-14:20	Satheesh Krishnamurthy (University of Surrey, UK) Plasma Jet Printing and in Situ oxidation of Mxene surfaces	I
14:20-14:35	Jincheng Tong (University of Manchester, UK) Control of proton transport and hydrogenation in double-gated graphene	O

14:35-16:00 Coffee Break / Poster session / Exhibition

Chairperson: Satheesh Krishnamurthy (University of Surrey, UK)

16:00-16:20	Navya Thomas (Technology Innovation Institute (TII), United Arab Emirates) Facile nanomaterial coated 3D printed spacer architectures for effective scaling control in membrane systems	I
16:20-16:35	Tarek Lemaoui (Khalifa University, United Arab Emirates) Computational modeling of modified 2D materials with deep eutectic solvents for water contaminant removal	O
16:35-16:50	Kishore Kumar Jena (Khalifa University, United Arab Emirates) 2D material- enhanced superhydrophobic protective coating	O
16:50-17:05	Dmitry Korolev (Norilsk Nickel Holdings Ltd., Cyprus) Highly efficient titanium anodes with electrocatalytic coating of mixed oxides based on ruthenium, palladium and iridium for industrial disinfection of water with sodium hypochlorite	O
17:05-17:25	Chakravarty Gudipati (Technology Innovation Institute (TII), United Arab Emirates) Title TBD	I

Workshop 2: Advanced materials in biotechnology and healthcare

Chairperson: Plinio Innocenzi (University of Sassari, Italy)

09:00-09:20	Pedro Alpuim (INL, Portugal)	I
	Chemical Sensing with Graphene Liquid-Gate Transistors	
09:20-09:40	Anna-Maria Pappa (Khalifa University, United Arab Emirates)	I
	Organic (nano)bioelectronics for point of care diagnostics	
09:40-09:55	Kun Huang (University of Manchester, UK)	O
	Tunable Release of Ions from Graphene Oxide Laminates for Sustained Antibacterial Activity in a Biomimetic Environment	
09:55-10:10	Marco Orecchioni (Augusta University, USA)	O
	Exploring the anti-inflammatory effect of Mo ₂ Ti ₂ C ₃ , Ta ₄ C ₃ and Nb ₄ C ₃ in murine monocytes and macrophages.	
10:10-10:25	Mariana Ionita (National University of Science and Technology Politehnica Bucharest, Romania)	O
	Recent advances in personalized solution for bone regeneration	

10:25-11:25 Coffee Break / Poster Session / Exhibition

Chairperson: Pedro Alpuim (INL, Portugal)

11:25-11:45	Plinio Innocenzi (University of Sassari, Italy)	I
	Towards a new generation of antiviral tools. Hyperbranched polylysine nanopolymers and photoactive carbon dots as effective antivirals	
11:45-12:05	Lucia Gemma Delogu (Khalifa Univ & Univ of Padua, UAE/Italy)	I
	High dimensional analysis for 2D material interactions with the immune system	
12:05-12:20	Kanagavalli Pandiaraj (Khalifa University, United Arab Emirates)	O
	Polymelamine-Modified Graphene Electrodes for Enhanced Claudin18.2 Detection	

12:20-14:00 Cocktail Lunch (offered by I2DM2024 organisers)

Workshop 3: Smart and advanced nanocomposite materials

Chairperson: Carlo Saverio Iorio (Université Libre de Bruxelles, Belgium)

09:00-09:15	Hari Kalathil Balakrishnan (RIC2D, United Arab Emirates)	O
	3D Printing Nanoporous Nanocomposite Membranes	
09:15-09:30	Gagik Shmavonyan (National Polytechnic University of Armenia, Armenia)	O
	Library of Rubbable and Rubbing Materials for obtaining Nanostructured Two-Dimensional Sheets, Nanostructures and Nanocomposites by the Surface Rubbing Method	
09:30-09:45	Baosong Li (Khalifa University, United Arab Emirates)	O
	Ag-assisted construction of multiple interfaces in Ti ₃ C ₂ T _x /g-C ₃ N ₄ @Ag composite films for enhanced electromagnetic interference shielding	
09:45-10:00	Muhammad Iqbal (United Arab Emirates University, UAE)	O
	Graphene/Polymer Nanocomposites: New Materials with Improved Functional Properties	
10:00-10:20	Monserrat Gutierrez (Technology Innovation Institute (TII), United Arab Emirates)	I
	Title TBD	

10:20-11:15 Coffee Break / Poster Session / Exhibition

Chairperson: Monserrat Gutierrez (TII, UAE)

11:15-11:35	Carlo Saverio Iorio (Université Libre de Bruxelles, Belgium)	I
	The role of advanced materials in the future of Space Exploration	
11:35-11:50	Rahat Alam (Khalifa University, United Arab Emirates)	O
	Use of spinel ferrite oxides and rGO composite electrode in capacitive deionization for Copper (II) removal	
11:50-12:05	Mahendra Kumar (Khalifa University, United Arab Emirates)	O
	Novel Heterostructured Holey Graphene-CoTiO ₃ /TiO ₂ Nanocomposite Enabled Photocatalytic Mixed Matrix Membranes for Antibiotics Removal	
12:05-12:25	Ammar Nayfeh (RIC2D / Khalifa University, UAE)	I
	Advancing Memory Technologies with 2D Materials	

12:25-14:00 Cocktail Lunch (offered by I2DM2024 organisers)

Workshop 4: Materials for hydrogen production, transportation and storage

Chairperson: Kyriaki Polychronopoulou (Khalifa University, United Arab Emirates)

14:00-14:20	Aldo Di Carlo (University of Rome "Tor Vergata", Italy) MXenes for Interface Engineering in Halide Perovskite Photovoltaic	I
14:20-14:40	Emmanuel Kymakis (Hellenic Mediterranean University, Greece) From Lab to Field: Overcoming Challenges in Perovskite Photovoltaics Commercialization through 2D Interface Engineering	I
14:40-15:00	Mohammad Ali Haider (Indian Institute of Technology Delhi, UAE) Decarbonizing the Fossil Fuel Sector Through High-Temperature Materials for Solid Oxide Fuel Cells	I
15:00-15:20	Sivasambu Bohm (Imperial College London & Graph-Nova, UK) Graphene industrial application towards decarbonization	I

15:20-16:00 Coffee Break / Poster session / Exhibition

Chairperson: Aldo Di Carlo (University of Rome "Tor Vergata", Italy)

16:00-16:20	Kyriaki Polychronopoulou (Khalifa University, UAE) Tailoring Ni-based catalysts for Dry Reforming of Methane and Hydrogen Production: The Forefront of Sustainable Energy	I
16:20-16:35	Jabir Ubaid Parakkal (Khalifa University, United Arab Emirates) Plasma-Treated LDPE/GNP Liners to Enhance Bonding with CFRP for Hydrogen Storage Applications	O
16:35-16:50	Thangavel Rajalingam (IIT(ISM) Dhanbad, India) Strain-Engineered MoS ₂ /WS ₂ and XS ₂ /VS ₂ (X=Mo, W) Heterostructures for Hydrogen Generation and Spintronics Applications	O
16:50-17:05	Alexey Leontyev (Norilsk Nickel Holdings (Cyprus) Ltd., Cyprus) Palladium-composite membranes application for the separation of high-purity hydrogen from gas mixtures	O
17:05-17:20	Feng Yan (University of Manchester, UK) MgH ₂ particles confined in a graphene-organosilica heterostructure for hydrogen storage	O
17:20-17:40	Yury Alaverdyan (nyobolt, UK) 5-min charging technology	I
17:40-18:00	Chiara Busa (Technology Innovation Institute (TII), United Arab Emirates) Title TBD	I
18:00-18:15	Nirpendra Singh (Khalifa University, United Arab Emirates) Waste Heat to Energy: From 2D Materials Perspective	O
18:15-18:30	Vinay Gupta (Khalifa University, UAE) 3D printing functional CNT-modulated nanoporous membranes for Energy Applications	O

Workshop 5: Advanced Materials Characterisation

Chairperson: Dalaver Anjum (Khalifa University, United Arab Emirates)

14:00-14:20	Chris Jung (Park Systems, South Korea) Observing various Moiré pattern on two-dimensional (2D) materials by advanced Atomic Force Microscopy (AFM) based imaging techniques	I
14:20-14:35	Albert Rigosi (National Institute of Standards and Technology, USA) Using Graphene and Topological Insulators to Advance U.S. Measurement Science	O
14:35-14:50	Peter Heinrich Thiesen (Park Systems GmbH, Germany) Deeper insights into 2D-Materials by Imaging spectroscopic Ellipsometry (ISE) and Imaging Mueller Matrix Ellipsometry (IMME)	O
14:50-15:05	Narek Margaryan (A. I. Alikhanyan National Science Laboratory, Armenia) 15.5 MeV Proton Irradiation Treatment of Liquid Phase Exfoliated Graphene	O
15:05-15:20	Simona Achilli (University of Milan, Italy) Growth, characterization and perspectives of applications of novel 2D carbon-based materials	O

15:20-16:00 Coffee Break / Poster Session / Exhibition

Chairperson: Simona Achilli (University of Milan, Italy)

16:00-16:20	Dalaver Anjum (Khalifa University, United Arab Emirates) Nano-Characterization of Nanomaterials Using Electron Microscopy	I
16:20-16:35	Joao Lucas Rangel Silva (HORIBA Scientific, France) Excitation-Tunable Gap-Mode TERS from 2D Semiconductors	O
16:35-16:50	Muhammad Abid (Marjan Polymer Industries, Pakistan) Investigation of Electrochemical, Morphological, Rheological and Mechanical Properties of Nano-layered Graphene / Zinc Nanoparticles Incorporated Cold Galvanizing Compound at Reduced Pigment Volume Concentration	O
16:50-17:05	Davit A. Ghazaryan (Yerevan State University, Armenia) Anisotropic optical response and emergent chirality in van der Waals arsenic trisulphide homostructures	O

Parallel Session PhD student

Chairperson: Vladimir Falko (National Graphene Institute, University of Manchester, UK)

14:00-14:15	Wenwen Zheng (King Abdullah University of Science and Technology, Saudi Arabia) The origin and mitigation of defects induced by metal evaporation in 2D materials	O
14:15-14:30	Omnya Al-Yafiee (Khalifa University, United Arab Emirates) Efficient membrane-based Direct Air Capture (m-DAC) technology using Graphene Oxide/Pebax based Mixed Matrix Membranes	O
14:30-14:45	Eubert Mahofa (Monash University, Australia) Enhanced removal of short-chain PFAS from water using modified Graphene Oxide membrane	O
14:45-15:00	Ahmed Aboulella (Khalifa University, United Arab Emirates) Self-dewatering Polyacrylic Acid-Alginate-Graphene Oxide hydrogel as an osmotic drawing agent in groundwater fertigation	O

15:00-16:00 Coffee Break / Poster session / Exhibition

Chairperson: Burcu Saner Okan (Sabanci University, Turkey)

16:00-16:15	Mariam Badawi (Khalifa University, United Arab Emirates) Scalable Liquid Phase Exfoliation of Layered and 2D Materials	O
16:15-16:30	Shahzaib Ali (Sungkyunkwan University, Korea) Environmentally Stable MXene Inks for Electrohydrodynamic Jet Printing of Micro-Electronics	O
16:30-16:45	Aya Aboukhater (Khalifa University, United Arab Emirates) Functional PDA-Coated MXene-Based Membranes for Targeted Antibiotic Purification In Hospital Effluents	O
16:45-17:00	Mohammed El Amine Miloudi (Institute of Physics, University of Rostock, Germany) Investigating integration of perylene derivative molecules with monolayer MoS ₂ : Insights into hybrid interface properties	O
17:00-17:15	Omnia Khattab (Khalifa University of Science Technology, United Arab Emirates) Laser Propulsion of Three-Dimensional Graphene Structures For Space Applications	O
17:15-17:30	Saleh Saeed Al Darmaki (RIC2D / Khalifa University, UAE) Electrical, Optical, and Structural Characterization of Molybdenum Trioxide (MoO ₃) Nano Rods Particles	O

INDUSTRIAL FORUM

Chairperson: Alban Chesneau (Carbon Waters, France)

09:00-09:30	Costas Galiotis (FORTH/ ICE-HT and University of Patras, Greece) Graphene composites: enabling innovative applications in the aerospace and automotive industries	K
09:30-09:45	Jitender Kumar (TACC Ltd., India) Graphene and its derivatives-based composites for industrial applications	O
09:45-10:00	Alessandra Zanuto (Gerdau Graphene, Brazil) Use of graphene as chemical additive for anticorrosive and architectural paints	O
10:00-10:20	Aravind Vijayaraghavan (The University of Manchester, UK) Graphene-based MEMS devices and route to manufacturing	I

10:20-11:00 Coffee Break / Poster Session / Exhibition

Chairperson: Costas Galiotis (FORTH/ ICE-HT and University of Patras, Greece)

11:00-11:30	Steve Devine (Graphene Composites, UK) Evolution in Inherent Vibration-Suppressive Materials	K
11:30-11:50	Alban Chesneau (Carbon Waters, France) Robust collaboration between design, process, production and commercial teams: a key element to successfully scale-up advanced materials	I
11:50-12:10	Ugo Sassi (Levidian, UK) Levidian LOOP: Decarbonising and Transforming Industries with High-Performance Graphene	I
12:10-12:25	Deepak Sridhar (Zentek Ltd, Canada) Advancing Graphene for Commercial Applications: Enhancing HVAC Filters for Sustainable Indoor Air Quality in Abu Dhabi Office Buildings	O

12:25-13:30 Cocktail Lunch (offered by I2DM2024 organisers)

Chairperson: Kari Hjelt (Chalmers Industriteknik, Sweden)

13:30-14:00	Rashid K. Abu Al-Rub (Khalifa University, United Arab Emirates) Multifunctional Properties of 3D Printed Graphene/MXene based Architected Cellular Materials	K
14:00-14:15	Alberto Morengi (BeDimensional SpA, Italy) Ionogel-based electrodes for non-flammable high-temperature operating electrochemical double layer capacitors	O
14:15-14:30	Yury Illarionov (Southern University of Science and Technology, China) Can the Recent FAB Progress in 2D Transistors Serve 2D Photodetectors?	O
14:30-14:45	Gleb Tselikov (Emerging Technologies Research Center, XPANCEO, United Arab Emirates) Nanoparticles of van der Waals materials with tunable size, shape and crystallinity for nanophotonic applications	O
14:45-15:05	Ali Shaygan Nia (MPI & TU Dresden, Germany) Emerging Two-Dimensional Materials via Wet- chemistry: Application in Energy and Electronics	I

15:00-15:30 Coffee Break / Poster session / Exhibition

Chairperson: Aravind Vijayaraghavan (The University of Manchester, UK)

15:30-16:00	Giulio Cerullo (Politecnico di Milano, Italy) Graphene-enabled stimulated Raman microscope for oncology	K
16:00-16:20	Yarjan Abdul Samad (Khalifa University, United Arab Emirates) Laser Induced Graphene: A New Paradigm	I
16:20-16:40	Xiao Zhisong (Beijing Information Science and Technology University, China) Integrated opto-electronic materials and devices	I
16:40-17:00	Zdenek Sofer (UCT Prague, Czech Republic) New 2D dielectrics and magnets for electronic applications	I
17:00-17:15	Georgy Ermolaev (XPANCEO, UAE) Wavelength-Dispersive Optical axes in Natural and Artificial Anisotropic Materials	O
17:15-17:35	Paolo Colombo (Università di Padova, Italy) Additive Manufacturing of Ceramics from Precursors	I
17:35-17:55	Kari Hjelt (Chalmers Industrial Technic, Sweden) Commercialisation of 2D materials	I
17:55-18:25	Bor Jang (Angstrom Materials, USA) Patenting and Commercialization of Graphene Materials and Application Technologies: a Challenging Journey of 22 years	K

WEDNESDAY NOVEMBER 27, 2024

Chairperson: Peter Bøggild (DTU Physics, Denmark)		
09:00-09:30	Doyoung Byun (Sungkyunkwan University, South Korea) High Precision Electrohydrodynamic Printing and Application to 2D Materials	K
09:30-10:00	Kin Liao (Khalifa University, United Arab Emirates) Two-dimensional Materials: Films and Lattices	K
10:00-10:30	Burcu Saner Okan (Sabanci University, Turkey) Driving Sustainability: Advances in Waste Management for Green Graphene Synthesis and Lightweight Thermoplastic Manufacturing	K
10:30-11:00 Coffee Break / Poster session / Exhibition		
Chairperson: Kin Liao (Khalifa University, United Arab Emirates)		
11:00-11:30	Rahul Nair (National Graphene Institute, The University of Manchester, UK) Harnessing Molecular Transport through 2D Material Membranes: Precision and Potential Applications	K
11:30-12:00	Linda Zou (Khalifa University, United Arab Emirates) Chitosan/MXene/GO Catalytic Nanocomposite membrane for Removing Dye and Heavy metals	K
12:00-12:30	Ludovic Dumeé (Khalifa University, United Arab Emirates) 3D printing functional nanoporous membranes and separation materials	K
12:30-13:00	Peter Bøggild (DTU Physics, Denmark) Terahertz Spectroscopy for Electrical Characterization of 2D Materials	I
13:30-14:30 Cocktail Lunch (offered by I2DM2024 organisers)		
14:30-15:00 Poster Session II / Exhibition		
Chairperson Ian Kinloch (Manchester University, UK)		
15:00-15:30	Andrea Ferrari (Cambridge Graphene Centre / University of Cambridge, UK) Title to be defined	K
15:30-16:00	Xiaofei Xiao (Technology Innovation Institute (TII), United Arab Emirates) Extraordinarily transparent compact metallic metamaterials	I
16:00-16:30	Valentyn Volkov (XPANCEO Emerging Technologies Research Center, United Arab Emirates) Giant Optical Anisotropy in van der Waals Materials: Perspectives and Challenges	I
16:30-16:45	Hassan Allami (University of Ottawa, Canada) Electrostatic Modulation of Interdot Tunnelling in Bilayer Graphene Quantum Dots	O
16:45-17:15 Coffee Break / Poster Session / Exhibition		
Chairperson: Hassan Arafat (RIC2D / Khalifa University, UAE)		
17:15-17:45	Prasad Potluri (GEIC, University of Manchester, UK) Targeted multi-scale dispersion of 2D materials in advanced composites	K
17:45-18:15	Rehan Umer (Khalifa University, United Arab Emirates) 2D Materials Enhanced Composites: Shaping the Future of Aerospace Structures	K
18:15-18:45	Ian Kinloch (Henry Royce Institute / Manchester University, UK) Multifunctional 2D Composites for the Energy Transition	K
18:45	CLOSING & I2DM2025 announcement	
20:30	CONFERENCE DINNER VOGO Abu Dhabi Golf Resort & Spa Abu Dhabi, United Arab Emirates, 126797 www.vogohotels.com - Google maps - more info	